



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/771,778	02/04/2004	Michael Donovan Mitchell	8493D	5167

27752 7590 05/10/2006

THE PROCTER & GAMBLE COMPANY
INTELLECTUAL PROPERTY DIVISION
WINTON HILL TECHNICAL CENTER - BOX 161
6110 CENTER HILL AVENUE
CINCINNATI, OH 45224

EXAMINER

PARKER, FREDERICK JOHN

ART UNIT	PAPER NUMBER
----------	--------------

1762

DATE MAILED: 05/10/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/771,778

Applicant(s)

MITCHELL ET AL.

Examiner

Frederick J. Parker

Art Unit

1762

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 February 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2 and 4-16 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2 and 4-16 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 2/27/06 has been entered.

Specification

2. Applicant is reminded of the proper content of an abstract of the disclosure.

A patent abstract is a concise statement of the technical disclosure of the patent and should include that which is new in the art to which the invention pertains. If the patent is of a basic nature, the entire technical disclosure may be new in the art, and the abstract should be directed to the entire disclosure. If the patent is in the nature of an improvement in an old apparatus, process, product, or composition, the abstract should include the technical disclosure of the improvement. In certain patents, particularly those for compounds and compositions, wherein the process for making and/or the use thereof are not obvious, the abstract should set forth a process for making and/or use thereof. If the new technical disclosure involves modifications or alternatives, the abstract should mention by way of example the preferred modification or alternative.

The abstract should not refer to purported merits or speculative applications of the invention and should not compare the invention with the prior art.

Where applicable, the abstract should include the following:

- (1) if a machine or apparatus, its organization and operation;
- (2) if an article, its method of making;
- (3) if a chemical compound, its identity and use;
- (4) if a mixture, its ingredients;
- (5) if a process, the steps.

Extensive mechanical and design details of apparatus should not be given.

The current abstract is too brief and does not comply with the above guidelines.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claims 15-16 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The limitation of there being “no cross-linking step between said coating and said carbonizing step” are not present in the original filing and are therefore New Matter.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Art Unit: 1762

7. Claims 1-2 and 4-12,14-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Economy et al. (U.S. Patent 5,834,114, hereafter '114) in view of Buzzelli (U.S. Patent 3,650,834, hereafter '834).

Claim 1 requires "A process for forming a filter material comprising the steps of:

- a) coating a filter particle with a coating comprising a lignosulfonate;
- b) carbonizing said coating; and
- c) activating said coating."

Economy '114 teaches a method for forming a filter material (col. 1, lines 11-13) comprising the steps of:

a) coating a fiber ("filter particle") with a carbonizable precursor coating (col. 2, lines 49-55; col. 1, lines 11-13). Furthermore, the fiber may be a glass fiber (col. 3, lines 23-26), which applicant states is a filter particle in claim 4.);

b) carbonizing said coating (col. 2, lines 53-54); and

c) activating said coating (col. 2, lines 54-55).

'114 is open to the use of other materials that will produce carbonizable coatings (col. 3, lines 8-15) of activated carbon. In fact, the "Background..." section, column 2 and elsewhere, lists a series of materials used as precursors for activated carbon, including coal, wood, organic shells, resins, etc. Use of a lignosulfonate is not cited.

Buzzelli '834 teaches the formation of an activated carbon electrode, which is formed by charring (i.e., carbonizing) and activating a lignosulfonate (col. 1, line 66-col. 2, line 16). The reference also explicitly teaches activated carbons may be formed from "Most carbon-containing substances" by charring, including wood char, coal, etc. Thus, Buzzelli explicitly teaches the formation of activated carbon from lignosulfonate, "activated carbon" having an art-recognized meaning for a specific form of carbon with high adsorptivity and a porous microstructure.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have used the lignosulfonate of Buzzelli '834 as the carbon precursor for activated carbon in place of the phenolic resin of Economy '114 with a reasonable expectation of success and similar results because Economy '114 is open to the use of other activated carbon precursors and because Buzzelli '834 recognizes lignosulfonates as operable carbon precursors for forming activated carbon.

Art Unit: 1762

Claim 2: Buzzelli '834 teaches that the lignosulfonate is sodium lignosulfonate (col. 2, lines 11-13).

Claim 4: Economy '114 teaches that the filter particle may be a glass fiber (col. 3, lines 23-27).

Claim 5: Economy '114 teaches that the filter particles may be woven fabrics (col. 3, lines 23-27; Example 1: col. 5, lines 1-14).

Claim 6: Economy '114 teaches drying the coating when applied as a solution (col. 3, lines 32-35; Example 1: col. 5, lines 9-10).

Claims 7-8: Economy '114 teaches that the cured (i.e., carbonized; see col. 3, lines 35-38) carbon add-on is 22-35% (Table I). Although Economy '114 does not appear to explicitly teach values of the coating add-on before carbonization, col. 3, lines 35-38 suggest that the amount of coating that is volatilized during the carbonization should be a minimum. Thus, Economy '114 suggests that the coating add-on before carbonization should be approximately the same as the carbon add-on in the carbonized coating.

Claim 9: In Example II, Economy '114 teaches the use of 0.6-0.9 g of substrate material (col. 5, lines 63-67). The weight of the activated coating may be determined from the information in Table II (original resin weight-weight loss), and ranges from 0.081-0.133 g. Thus, the examples necessarily teach that the coating add-on in the activated coatings of Example II are between 8 and 19%.

Claim 10: Buzzelli '834 teaches charring the lignosulfonate below about 600 °C (col. 2, lines 1-2). The subject matter as a whole would have been obvious to one of ordinary skill in the art at the time the invention was made to have selected the overlapping portion of the range disclosed by the reference because overlapping ranges have been held to be a *prima facie* case of obviousness, see *In re Malagari*, 182 U.S.P.Q. 549.

Claim 11: Economy '114 suggests activation temperatures of 600-800 °C (Example II).

Claim 12: Economy '114 teaches BET surface areas of 710-1245 m²/g (Table III).

Claims 15-16: since the combination of references uses the *same activated carbon precursor materials* as the claims, and the same materials would have provided the same materials properties and thermal behavior under the same treatment conditions, the lignosulfonate would meet Applicants' limitation of "no cross-linking step between said coating

Art Unit: 1762

and said carbonizing step” since the claims and specification also recite lignosulfonate as a precursor.

8. Claims 13-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Economy ‘114 in view of Buzzelli ‘834, as applied to claim 1, above, and further in view of Buelow et al. (U.S. Patent 6,006,797, hereafter ‘797).

‘114 and ‘834 are discussed above, but do not explicitly teach that the sum of mesopores and macropores specific volumes is between 0.2-2.2 mL/g or a volume ratio of (mesopores + macropore)/micropore of between 0.3 and 3.

However, ‘114 teaches that the properties of the activated-carbon coated fibers may be tailored to adsorb a wide variety of contaminants (col. 2, lines 28-30) and that the pores of desired size may be obtained (col. 4, lines 18-25).

‘797 teaches the formation of activated carbon compositions from carbonizable precursors, wherein the compositions are designed to adsorb acetylene (col. 7, lines 19-67). Example 5 teaches that the adsorption of acetylene may be made reversible by using activated carbon compositions with a specific micropore volume of 0.6 mL/g, a specific mesopore volume of 0.9 mL/g, and a specific macropore volume of 0.15 mL/g (Example 5: col. 10, lines 62-68). (Note: A cubic centimeter is equivalent to a milliliter.) Thus, ‘797 teaches that the sum of mesopores and macropores specific volumes is 1.05 mL/g and the volume ratio of (mesopores + macropore)/micropore is 1.75. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have used the method of ‘114 and ‘834 to have created an activated carbon with a sum of mesopore and macropore specific volumes of 1.05 mL/g and a volume ratio of (mesopores + macropore)/micropore of 1.75 because ‘114 teaches that the properties of the activated carbon film may be modified for the adsorption of different chemical species and because ‘797 teaches that such values are specifically useful in the adsorption of acetylene.

Double Patenting

9. A properly executed Terminal Disclaimer was filed on 2/27/06, thereby rendering the previous Double patenting rejections moot.

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. US 6372289 illustrates the state of the art regarding the conventional understanding of the meaning and properties of activated carbon and its uses (col. 1-2, etc).

Response to Arguments

The Examiner has considered Applicants' arguments of record. The prior art rejections have been modified to address some of Applicants' concerns or misunderstanding of the reference.

This Examiner has clearly outlined the motivation for substituting lignosulfonate (derived at least in part from wood-based materials) of the secondary reference for the carbon source of the primary reference, given that both materials produce activated carbons which, by definition, have a high adsorptivity and a porous microstructure. Thus, substituting one activated carbon for another, regardless of precursor source, would have been expected to provide similar properties of high adsorptivity and porous microstructure. One of ordinary skill would have looked to Buzzelli '834 for additional sources of activated carbon given the teachings of both references that activated carbon can be formed for virtually any carbonaceous precursor under the proper forming/ activating conditions. Whether as a coating or bulk material, activated carbon would retain the same inherent characteristics including those that make the material useful as a filter material. Economy clearly is open to a wide range of precursor materials to form activated

Art Unit: 1762

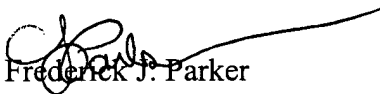
carbon, and Buzzelli simply sets forth a specific material known to form activated carbon. Thus, there is neither hindsight nor 'obvious to try' rationale.

The issue raised of non-analogous art is not persuasive. The Buzzelli reference is directed in part towards making activated carbon by carbonization of carborizable and activatable precursors "which is reasonably pertinent" to the particular problem with which the inventor was concerned, MPEP 2141.01a.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Frederick J. Parker whose telephone number is 571/ 272-1426. The examiner can normally be reached on Mon-Thur. 6:15am -3:45pm, and alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy Meeks can be reached on 571/272-1423. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Frederick J. Parker
Primary Examiner
Art Unit 1762

fjp